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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,095	02/19/2004	Anuj Batra	TI-36097	4758
23494 7590 10/08/2008 TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265				
EXAMINER AHN, SAM K				
ART UNIT 2611		PAPER NUMBER		
NOTIFICATION DATE 10/08/2008		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto@ti.com

Office Action Summary**Application No.**

10/782,095

Applicant(s)

BATRA ET AL.

Examiner

SAM K. AHN

Art Unit

2611

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 29-33 and 38 is/are rejected.
- 7) ☒ Claim(s) 4-28 and 34-37 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see p.17-18, filed 06/20/08, with respect to the rejection(s) of claim(s) 1-3 and 29 under 102(e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Fischer et al. US 2002/0032001 A1 (Fischer).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Fischer et al. US 2002/0032001 A1 (Fischer).

Regarding claim 1, Fischer teaches a transceiver for a wireless communications system (transceiver of a wireless communications system, such as 16a in Fig.1), the preamble comprising a sequence wherein the sequence comprises a concatenation of a first set of sub-sequences with each sub-sequence containing a specified number of zeroes (first sub sequence of 01010101 and second sub sequence of 01111110, note paragraph 0048, having four and two zeroes,

respectively), and wherein each sub-sequence differs depending upon its position in the preamble (the two sub sequences differing with the first and second sub sequences positioned in the first and second position of the preamble, note paragraph 0048).

Regarding claim 2, Fischer further teaches wherein the sub-sequences may be specified in the time domain (the disclosure of first sub sequence of 01010101 and second sub sequence of 01111110, note paragraph 0048, are in time domain).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 29 rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer et al. US 2002/0032001 A1 Fischer) in view of Sorrells et al. US 7,054,296 B1 (Sorrells).

Regarding claim 29, Fischer further teaches wherein the communication system implements in a wireless communications system, but is silent in regards to implementation of OFDM.

Sorrells further teaches wherein the communication system implements OFDM (note col.58, line 57). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teaching of Sorrells in the system of Fischer of modulating using OFDM technique for the purpose of providing plurality of orthogonal channels, which is well-known in the art of transmitting signals with plurality of orthogonal channels combating interference.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer et al. US 2002/0032001 A1 Fischer) in view of Wang et al. US 6,868,095 B2 (Wang).

Regarding claim 3, Fischer teaches all subject matter claimed, as applied to claim 1. However, Fischer does not explicitly teach a second sequence wherein the second sequence comprises a concatenation of a second set of sub-sequences wherein the second set of sub-sequences can differ from the first set of sub-sequences.

Wang teaches a preamble of including different sub sequences of a preamble (see Fig.4) including a second set of sub sequences (bytes 1,2 and 6, note c.2, l.65 – c.3, l.12). Wang teaches that this implementation provides a benefit to guard against errors. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teaching of Wang in the system of Fischer of incorporating the second set in the preamble of Fischer for the purpose of guarding against errors

5. Claims 30-33 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer et al. US 2002/0032001 A1 (Fischer) in view of Sorrells et al. US 7,054,296 B1 (Sorrells) and Kaku et al. US 2003/0007190 A1 (Kaku).

Regarding claim 30, Fischer in view of Sorrells teaches all subject matter claimed, as applied to claim 29. And although Sorrells teaches the OFDM system, does not further teach a time frequency interleaved, OFDM system. Kaku teaches an OFDM system wherein the transmitter of the system further performs time frequency interleaving (see 104 in Fig.1) and suggests that this results in a two-dimensional interleaving (further see Figs.15A and 15B), hence as illustrated in Fig.15B the interleaving level has increased, resulting in the two-dimensional interleaving (note paragraph 0093). Kaku also suggests that interleaving in the OFDM system is well-known to an artisan (note paragraph 0010). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teaching of Kaku in the system of Fischer by implementing interleaving, the time frequency interleaving, in the transmitter of Sorrells for the purpose of performing a two-dimensional interleaving (note paragraph 0093).

Regarding claim 31, Fischer in view of Sorrells further teaches transforming the signal that includes the preamble received by the receiver wherein the received signal is provided to inverse Fast Fourier Transform (note paragraph 0018).

However, Sorrells does not explicitly teach wherein the signal including the preamble is transformed prior to transmission.

Kaku teaches an OFDM system wherein the signal in the transmitter is transformed (from element 4 through element 8 in Fig.12 transforming to time domain, removing or filtering of zero point and interleaving).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teaching of Kaku in the system of Sorrells by implementing the two-dimensional interleaving for the purpose of performing a two-dimensional interleaving (note paragraph 0093).

Regarding claim 32, Kaku further teaches time-domain filtering (5 in Fig.12, removing or filtering of zero point in time domain, as it receives output of IFFT).

Regarding claim 33, Kaku further teaches the transformation comprises a first domain conversion (element 4 in Fig.12), processing the domain converted preamble (Sorrells in view of Kaku teaches the signal comprises the preamble, processing the signal in elements 5-7) and a second domain conversion (element 8).

Regarding claim 38, Kaku further teaches wherein the signal having the preamble, as previously explained, can be transformed prior to use and stored in

a memory (wherein the transformation of elements 4-8 in Fig.13 is implemented prior to Data stock 34 in Fig.13 of a buffer memory, note paragraph 0084).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Ahn whose telephone number is (571) 272-3044. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sam K. Ahn/
Primary Examiner, Art Unit 2611

10/7/2008